PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Examiner:
PETER G. SCHULTZ, *et al.*	Art Unit:
Application No.:	
Filed:	DECLARATION OF MARTIN DEVENNEY UNDER 37 C.F.R. §1.132 IN SUPPORT OF SUPPLEMENTAL RESPONSE ~~AMENDMENT~~ H
For:	

#35 (Appl) 2-20-03

DECLARATION OF MARTIN DEVENNEY UNDER 37 C.F.R. §1.132

I, Martin Devenney, hereby declare as follows:

1. I am the Director of the Electronic and Related Materials Group at Symyx Technologies, Inc., 3100 Central Expressway, Santa Clara, CA 95051. I own Symyx common stock and receive stock options as part of my compensation at Symyx. I have reviewed the claims pending in the above-identified patent application and I make this declaration to demonstrate that the claimed methods have achieved commercial success in the marketplace.

2. I graduated from Queen's University of Belfast, Northern Ireland in July, 1994 with a Ph.D. in Chemistry. Thereafter, I conducted postdoctoral research at the University of North Carolina, Chapel Hill, working on various electrochemical and spectroscopy projects. My CV is attached hereto as Appendix A. I joined Symyx in November, 1996 to develop and apply combinatorial methods to the study of inorganic materials.

3. I understand that the inventions claimed in this patent application (*i.e.*, the inventions defined by claims 42, 68, 70, 72, 74, 84 and 88, together with claims depending

therefrom) are directed to methods for preparing arrays of diverse inorganic materials at discrete regions of a common substrate, and methods for using such arrays for identifying promising new materials. Each of the methods requires forming ten or more different materials at discrete regions of a substrate by a method that includes delivery of first and second components in successive layers within discrete regions of a substrate, while varying the composition, concentration, stoichiometry and/or thickness of the delivered components between respective regions. More specifically, each of the claims require (i) delivering a first component of the material to the substrate to form a first solid layer comprising the first component on the substrate, (ii) delivering a second component of the material to the substrate to form a second solid layer comprising the second component on the first layer, and (ii) varying the composition, concentration, stoichiometry or thickness of the delivered (first or second) component between respective regions. (*See*, for example, claim 68).

Additional features or steps are required in certain claims, including for example, forming an array of inorganic materials with delivery of five or more components for each of the ten or more materials (claim 70), forming one hundred or more inorganic materials on a substrate with a region density greater than 10 regions per cm^2 and allowing interaction of the delivered components, and then screening these inorganic materials for a property of interest and determining the relative performance thereof (claim 72), forming an array of composite materials, screening these composite materials for a property of interest and determining the relative performance thereof (claim 74), varying the composition, concentration, stoichiometry and/or thickness of the delivered components as a gradient between respective regions (claim 84), and forming a lattice or superlattice comprising the delivered components (claim 88).

4. By many different measures the methods claimed in these applications for preparing arrays of diverse inorganic materials (including the inventions defined by claims 42, 68, 70, 72, 74, 84 and 88, together with claims depending therefrom) have been a commercial success:

a. The claimed inventions have potential for broad applications in research programs across numerous industrial markets, including electronics, phosphors, batteries, electrocatalysts, heterogeneous catalysts, defense, and energy applications.

b. Symyx has successfully implemented collaborative research programs involving execution of the claimed methods for preparing arrays of inorganic materials for clients such as the Defense Advanced Research Projects Agency (DARPA) (*e.g.*, thermoelectric materials, magnetic materials) Celanese (*e.g.*, heterogeneous catalysts), Bayer (*e.g.*, heterogeneous catalysts), and several undisclosed partners (*e.g.*, semiconductors, fuel cell electrocatalysts, and amorphous metals). Combined, these entities have paid over eleven million U.S. dollars ($ 11,000,000) over a period of five years for these collaborative research programs, and part of what they paid for and continue to pay for are the methods encompassed by these claims.

c. In addition, as part of Symyx' Discovery Tools® business (which includes the sale of instruments, software and know-how for various workflows, and the outlicensing of selected technologies), Symyx recently licensed Kurt J. Lesker Co. under certain Symyx patents to manufacture and sell physical vapor deposition systems specifically adapted to practice the methods of the present invention. *See* "Symyx Technologies and Kurt J. Lesker Company Enter into Instrument Licensing Agreement", Symyx News Release dated September 19, 2002, a copy of which is attached hereto as Exhibit B. Based on information and belief, the incremental sale price that is associated with Kurt J. Lesker Company's "combinatorial package" for adapting a basic physical vapor deposition instrument for practice of the claimed invention is expected to be in excess of one-hundred-thousand U.S. dollars ($100,000), and for some embodiments, as much as two-hundred-thousand dollars ($200,000) per instrument.

d. Symyx has also used the claimed methods for preparing arrays of inorganic materials in several of its own internal research programs. *See,* for example, P. Cong *et al.*, High-Throughput Synthesis and Screening of Combinatorial Heterogeneous Catalyst Libraries, pp. 483-488, Angew. Chem. Int. Ed. Vol. 38, No. 4 (1999), a copy of which is attached hereto as Exhibit C.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that the statements herein were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001, and that such willful false statements may jeopardize the validity of the above-identified application or any patents issuing thereon.

Date: Feb 06, 2003

Martin Devenney